



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,962	05/30/2002	Robert William Bruce	13DV-13657	4043

30952 7590 05/12/2005

HARTMAN AND HARTMAN, P.C.
552 EAST 700 NORTH
VAIPARAISO, IN 46383

EXAMINER

MCNEIL, JENNIFER C

ART UNIT	PAPER NUMBER
----------	--------------

1775

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/063,962

Applicant(s)

BRUCE, ROBERT WILLIAM

Examiner

Jennifer C. McNeil

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1775

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 5, 7-10, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhu et al (US 6,812,176). Zhu teaches a thermal barrier coating for a turbine engine component comprising zirconia, a primary stabilizer oxide, a Group A oxide, and a Group B oxide. The primary oxide may be yttria at a concentration of 2-25 molar percent. The Group A and B oxides may be present at a concentration of 0.5-25 molar percent. The Group A oxide may include a rare earth oxide (lanthana for instance) or a transition oxide (tantala for instance). The Group B oxide may be neodymia. Regarding the concentration conversion from mol % to wt%, please see the enclosed chart.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject

Art Unit: 1775

matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7-10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al (US 6,812,176). Zhu teaches a thermal barrier coating as discussed above, and gives overlapping ranges of oxide concentrations. While Zhu does not give specific examples of oxides within these ranges, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Zhu overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Claims 11, 12, 14, 15, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al (US 6,812,176) in view of Rickerby et al (US 6,025,078). Zhu teaches a thermal barrier coating as discussed above, and specifies its use for turbine blades. Zhu does not give a specific substrate or bond coating for the turbine blade. Rickerby teaches a zirconia based thermal barrier coating similar to that of Zhu which is

Art Unit: 1775

used for turbine blades. Rickerby teaches a metal substrate and multiple types of bond coatings that may be used to improve the adhesion of the zirconia coating to the underlying substrate. One of ordinary skill would have found it obvious to use a bond coating to adhere the zirconia based thermal barrier of Zhu to an underlying substrate in a manner similar to that of Rickerby, as they both are coatings for turbine engine blades and have similar compositions.

Claims 1, 2, 5, 6, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorfman et al (US 2004/0197580). Dorfman teaches a thermal barrier coating comprising a zirconia-stabilized oxide. The zirconia may be stabilized with yttria in an amount between 6-10 wt%, and the yttria may be replaced or supplemented by neodymia. One of ordinary skill would have found it obvious to substitute part of the yttria with neodymia as clearly suggested by Dorfman. One of ordinary skill would have found it obvious to use any combination of concentrations of the yttria and neodymia which adds up to the desired amount of 6-10 wt% total stabilizer.

Claims 11-14, 16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorfman et al (US 2004/0197580) in view of Rickerby et al (US 6,025,078). Dorfman teaches a thermal barrier coating as discussed above, comprising a zirconia based oxide stabilized with yttria and supplemented with neodymia. Dorfman does not give a specific substrate or bond coating to which the coating is affixed.

Art Unit: 1775

Rickerby teaches a zirconia based thermal barrier coating similar to that of Dorfman and which is used for turbine blades. Rickerby teaches a metal substrate and multiple types of bond coatings that may be used to improve the adhesion of the zirconia coating to the underlying substrate. One of ordinary skill would have found it obvious to use a bond coating to adhere the zirconia based thermal barrier of Dorfman to an underlying substrate in a manner similar to that of Rickerby, as they both are thermal barrier coatings and have similar compositions.

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

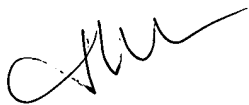
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C. McNeil whose telephone number is 571-272-1540. The examiner can normally be reached on 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1775

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer McNeil
May 9, 2005